

CLAIMS

What is claimed is:

1. A composition comprising at least one peptide copper complex and at least one metalloproteinase inhibitor.
2. The composition of claim 1 wherein the at least one metalloproteinase inhibitor is a matrix metalloproteinase inhibitor.
3. The composition of claim 2 wherein the matrix metalloproteinase inhibitor is a naturally produced tissue inhibitor of metalloproteinase, a recombinant tissue inhibitor of metalloproteinase, or a mutant thereof.
4. The composition of claim 3 wherein the tissue inhibitor of metalloproteinase is TIMP-1.
5. The composition of claim 3 wherein the tissue inhibitor of metalloproteinase is TIMP-2.
6. The composition of claim 3 wherein the tissue inhibitor of metalloproteinase is TIMP-3.
7. The composition of claim 3 wherein the tissue inhibitor of metalloproteinase is TIMP-4.
8. The composition of claim 2 wherein the matrix metalloproteinase inhibitor is naturally occurring α_2 -macroglobulin.

9. The composition of claim 2 wherein the matrix metalloproteinase inhibitor is a non-peptidic hydroxamate inhibitor or a pipcolinic hydroxamic acid derivative.

10. The composition of claim 9 wherein the non-peptidic hydroxamate inhibitor is marimastat.

11. The composition of claim 9 wherein the pipcolinic hydroxamic acid derivative is pipcolinic sulfamide.

12. The composition of claim 2 wherein the matrix metalloproteinase inhibitor is a malonyl- α -mercaptoalcohol, a succinyl- α -mercaptoalcohol, a malonyl- α -mercaptoketone, or a succinyl- α -mercaptoketone.

13. The composition of claim 2 wherein the matrix metalloproteinase inhibitor is a naturally occurring macrocyclic lactone.

14. The composition of claim 2 wherein the matrix metalloproteinase inhibitor is a bisphosphonate.

15. The composition of claim 2 wherein the matrix metalloproteinase inhibitor is an antibiotic.

16. The composition of claim 15 wherein the antibiotic is anthracycline, tetracycline, doxycycline, minocycline, or a derivative thereof.

17. The composition of claim 2 wherein the matrix metalloproteinase inhibitor is a retinoid, a thyroid hormone, a glucocorticoid, progesterone or an androgen.

18. The composition of claim 2 wherein the matrix metalloproteinase inhibitor is a peroxisome proliferator-activated receptor gamma.

19 The composition of claim 2 wherein the matrix metalloproteinase inhibitor is an antisense RNA or ribozyme.

20. The composition of claim 2 wherein the matrix metalloproteinase inhibitor is obtained from cartilage.

21. The composition of claim 20 wherein the cartilage is fish cartilage.

22. The composition of claim 21 wherein the matrix metalloproteinase inhibitor is MDI Complex.

23. The composition of claim 21 wherein the fish cartilage is shark cartilage.

24. The composition of claim 1 wherein the at least one peptide copper complex is L-alanyl-L-histidyl-L-lysine:copper(II), L-valyl-L-histidyl-L-lysine:copper(II) or glycyl-L-histidyl-L-lysine:copper(II).

25. The composition of claim 1 wherein the at least one peptide copper complex is alanyl-histidyl-lysine:copper(II).

26. The composition of claim 1 wherein the at least one peptide copper complex is valyl-histidyl-lysine:copper(II).

27. The composition of claim 1 wherein the at least one peptide copper complex is glycyl-histidyl-lysine:copper(II).

28. The composition of claim 1 wherein the at least one peptide copper complex is [glycyl-histidyl-lysine-R]:copper(II), wherein R is an alkyl moiety containing from one to eighteen carbon atoms, an aryl moiety containing from six to twelve carbon atoms, an alkoxy moiety containing from one to twelve carbon atoms, or an aryloxy moiety containing from six to twelve carbon atoms

29. The composition of claim 1 wherein the concentration of the at least one peptide copper complex, as a percentage of the total weight of the composition, ranges from about 0.01% to about 5%.

30. The composition of claim 1 wherein the concentration of the at least one peptide copper complex, as a percentage of the weight of the composition, ranges from about 0.025% to about 1.0%.

31. The composition of claim 1 wherein the concentration of the at least one peptide copper complex, as a percentage of the weight of the composition, ranges from about 0.05% to about 0.5%.

32. The composition of claim 1 wherein the molar ratio of peptide to copper in the at least one peptide copper complex ranges from about 1:1 to about 3:1.

33. The composition of claim 1 wherein the molar ratio of peptide to copper in the at least one peptide copper complex ranges from about 1:1 to about 2:1.

34. The composition of claim 1 wherein the at least one metalloproteinase inhibitor and/or the at least one peptide copper complex are encapsulated in a liposome or microsponge adapted to aid in the delivery of the at least one metalloproteinase inhibitor and/or at least one peptide copper complex to the skin of a patient, or to enhance the stability of the composition.

35. The composition of claim 1 wherein the at least one metalloproteinase inhibitor and the at least one peptide copper complex are formulated in an instrument adapted to deliver the same via iontophoresis to the skin of a patient.

36. The composition of claim 1 wherein the at least one metalloproteinase inhibitor and the at least one peptide copper complex are formulated for delivery to the skin of a patient, where the delivery is enhanced by ultrasound.

37. The composition of claim 1 wherein the at least one metalloproteinase inhibitor and the at least one peptide copper complex are formulated for application to the skin after a treatment to remove or partially remove the stratum corneum thereof.

38. The composition of claim 1, further comprising an excipient, an inert and physiologically-acceptable carrier, a preservative, or a mixture thereof.

39. The composition of claim 1, further comprising an inert and physiologically-acceptable diluent.

40. The composition of claim 39, further comprising a sunscreen agent, a skin-conditioning agent, a skin protectant, an emollient, a humectant, an emulsifying agent, a thickening agent, or a mixture thereof.

41. The composition of claim 40, further comprising a fatty alcohol, a fatty acid, an organic base, an inorganic base, a wax ester, a steroid alcohol, a triglyceride ester, a phospholipid, a polyhydric alcohol ester, a fatty alcohol ether, a hydrophilic lanolin derivative, a hydrophilic beeswax derivative, a cocoa butter wax, a silicon oil, a pH balancer, a cellulose derivative, a hydrocarbon oil, a surfactant, or a mixture thereof.

42. The composition of claim 1 wherein the composition is in the form of a liquid, a cream, a suspension, a gel, an emulsion, a lotion, or an oil.

43. A method for treating an inflammatory condition in a patient, comprising orally, parenterally, or topically administering to a patient in need of such treatment, a therapeutically effective amount of the composition of claim 1.

44. A method for treating osteoarthritis or rheumatoid arthritis in a patient comprising orally, parenterally, or topically administering to a patient in need of such treatment, a therapeutically effective amount of the composition of claim 1.

45. A method for enhancing the wound-healing process in a patient, comprising orally, parenterally, or topically administering to a patient in need thereof, a therapeutically effective amount of the composition of claim 1.

46. The method of claim 45 wherein the parenteral administration of the composition of claim 1 is at least one intravenous injection or at least one injection into the wound or into the area surrounding the wound.

47. A method for treating a skin disease comprising orally, parenterally, or topically administering to a patient in need of such treatment, a therapeutically effective amount of the composition of claim 1.

48. A method for cosmetically treating skin, comprising orally or parenterally administering to a patient in need of such treatment a therapeutically effective amount of the composition of claim 1.

49. The method of claim 48 wherein the cosmetic treatment of the skin is smoothening the skin, reducing hyperpigmentation of the skin, reducing wrinkles and

fine lines in the skin, reducing evidence of photodamage of the skin, or reducing the signs of aging in the skin.

50. A method for stimulating the growth of hair in a patient, comprising orally, parenterally, or locally administering to a patient in need thereof, a therapeutically effective amount of the composition of claim 1.

51. The method of claim 50 wherein the local administration is by topical application or by intradermal injection.

52. A method for promoting the healing of affected bone in a patient, comprising administering to the affected bone, or the area surrounding the affected bone, a therapeutically effective amount of the composition of claim 1.